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UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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U.S. Department of Agriculture

PROGRAM Course No. 1 -- "Livestock Breeding". RELEASE

Lecture No. 1 -- "Principles of Livestock Breeding".

First Mon., Oct. 4

ANNOUNCEMENT: Tonight we are opening Uncle Sam's big Livestock Radio School. Students who are already enrolled and others who wish to join the class will give us their attention. Printed lessons are sent without charge to those who request enrollment blanks. Send your request to this station or to the Radio Service of the U. S. Department of Agriculture. We are now going to introduce _____, our spokesman for a number of experts on livestock in the Bureau of Animal Industry of the Department of Agriculture. He will talk on "Principles of Livestock Breeding". This is the first of the regular Monday evening lessons on farm livestock.

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You've all heard the expression, BLOOD WILL TELL. It's the corner stone of wise livestock breeding. The most successful stockmen also know that BLOOD WILL SELL. Some men, in battle, have sold their blood dearly, -- but we don't mean that. We're not referring to Custer's LAST STAND now. When we speak of the expression, BLOOD WILL SELL, in this lesson, we refer to the fact that the kind of animal you raise, -- and the price it brings, -- depend on its breeding: ITS BLOOD LINES. Of course, feed and care have a big influence, but unless good breeding is there also, you can't hope for the best results from livestock.

This is the time of year when many of you livestock men go to fairs or livestock shows. There you really can get a lot of vital, valuable information by studying the show stock, and by talking with exhibitors.

Out in the green hills of Maryland, just a few miles from Washington, is the Government experiment farm at Beltsville. Let's take a little trip out there. We can ride on the magic carpets or our imaginations. I believe in teaching with the materials for the lesson around me. Here we are.

Over there to the right is a good-sized building where thousands of guinea pigs are bred. Guinea pigs are queer little animals. They multiply rapidly and are excellent mathematicians, -- they give the correct answer to a number of breeding questions. The men who are studying heredity at the Beltsville farm learn much that's new and valuable in the guinea-pig quarters.

Whatever an animal has, so far as its inheritance is concerned, it gets from its parents. Certain men in history have found that to be as true in their own cases. Have you ever heard of the Hapsburg nose? I think I have inherited certain of my characteristics from my parents. I'd like to blame my snub nose on them. But coming back to livestock -- WHATEVER AN ANIMAL HAS IT GETS FROM ITS PARENTS, SO FAR AS ITS INHERITANCE IS CONCERNED. The parents get theirs from their parents, -- and so on back.

The effects of feed, care, disease, and surroundings have a great deal to do with a young animal's development. But those things have nothing to do with hereditary characteristics such as color--length of hair, - the presence or absence of horns, etc. These are inherited.

It may seem to us -- as we look about this experiment farm and see the variety of livestock, and all their many different types and characteristics, -- that the principles of breeding are too many, and too complicated, for the average livestock owner to master. Still, it's easy for you to get some of the most important facts on the practical side of livestock breeding. A good many of these facts are summed up in a 30-page pamphlet issued by the Department of Agriculture. Suppose you send for Farmers' Bulletin 1167, "Essentials of Animal Breeding."

The underlying principles of hereditary are the same for all animals. When you learn them for cattle, you have already gone a long way toward a knowledge of breeding as it applies to other farm animals.

Of course, all facts about heredity are not yet known -- but I'll give you some of the most important ones, for your use in the course of this lesson in Uncle Sam's Radio Farm School. I'll choose the ones you can apply in the daily work of improving your own flocks and herds.

First let's speak of PREPOTENCY. "Prepotency is the power of animal, male or female, to stamp its characteristics on its offspring." The polled characteristics of some breeds of cattle enable the breeder to raise calves without horns. PREPOTENCY also enables breeders to obtain livestock of the desired color markings, -- and other characteristics desired in the offspring.

Whether the offspring will be male or female is probably a matter of chance, so far as the livestock breeder is concerned. Over a period of years, he gets nearly equal numbers of both sexes.

Then there's SELECTION. Selection of the desired breeds and types has brought about the improvement of the important present breeds of livestock, over the stock from which they came. Usually, a male is depended on to do this. That makes it vital that the males be chosen very carefully. If you livestock men will practice selection wisely and persistently, you will have a big advantage over those who leave the mating of their animals mostly to chance.

Breeding may overcome many of the common defects of stock such as weakness of back, excessive legginess, weakness of feet and legs, narrow chests, and general poor conformation. Improved breeding is also a valuable means of increasing the production of milk and butterfat in dairy cows and of eggs in poultry. With meat animals, improved breeding will hasten maturity and improve quality.

You livestock men have all heard of pedigree registration. That is the foundation and assurance of pure breeding of livestock, with the exception of poultry and pet stock, in the United States. To be classed as purebred, animals must be registered in a book of record for the particular breed. I know experienced and successful breeders who study the pedigrees of their stock for hours. They go back to the animals' parents and grandparents. They go back even to their animals' more distant ancestors. They study the characteristics of these ancestors carefully and with interest. The men here at the Government experiment farm are

among those who burn the midnight oil studying pedigrees. You've got to know about the breeding of your animals if you expect to do the best work improving what you have now.

One of the most practical means of improving the quality and fixing the type of common mixed livestock is the use of purebred sires. If males are better individuals than the females with which they are mated then each successive cross may be a big improvement over the ones which went before.

It isn't good business to use crossbred or grade sires. Their hereditary material is so varied and complicated that you never know beforehand what kind of offspring you will get.

The practical livestock man ought to be satisfied with selecting one of the standard breeds for his use rather than attempting to develop something new. Such attempts usually cost a lot of money and rarely give good results. Let the breeding specialists do the long and complicated work of establishing new breeds.

It's a fine thing to get information on animal breeding from reliable quarters, -- if you want the information sound. There are a lot of incorrect ideas of heredity going around.

The men on this farm know that this is a good rule to remember: -- BREED THE BEST TO THE BEST. Nature works in an orderly way. You livestock men will get the greatest proportion of high-quality animals when you select your breeding stock with great care and then mate your animals so as to combine their good qualities and get rid of the defects.

Remember, BLOOD WILL TELL.

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ANNOUNCEMENT: The subject of the next lesson is "Essentials of Successful Feeding" so I'll stop now and turn the microphone over th the next authority. Remember to write for enrollment cards so that we can send you more complete information by mail. See you again next Monday.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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RECEIVED OCT 1 1926 U. S. Department of Agriculture

PROGRAM U. S. RADIO FARM SCHOOL RELEASE October 4, 1926

Course - Livestock Breeding

Lecture No. 1 -- "Selecting Suitable Breeds and Types."

ANNOUNCER: Tonight we are opening Uncle Sam's big Livestock Radio School. Students who are already enrolled and others who wish to join the class will give us their attention. Printed lessons are sent without charge to those who request enrollment blanks. Send your request to this station or to the Radio Service of the U. S. Department of Agriculture. We are now going to introduce ----------, our spokesman for a number of experts on livestock in the Bureau of Animal Industry of the Department of Agriculture. He will talk on "Selecting Suitable Breeds and Types of Livestock for the Farm". This is the first of the regular Monday evening lessons on farm livestock.

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Stand on this hill with me for a minute and look out over the country. We can see most of my farm from here and a lot of the neighbors' farms. Over there is Hi Doe's place. Does he raise bananas? He does not. Does Eb over there keep a fine flock of camels? I don't reckon so. Has Cy found that he can make money on that good farm of his raising polar bears? Well, if he has, he is keeping it quiet. All these neighbors of mine are in the business of farming and livestock raising. All of them raise about the same kind of stock because they have found that a certain kinds and combinations of stock pay in this country. Now let me tell you a short story about the days when I started in this business.

When I was younger I wanted to be DIFFERENT. So, when I started this farm twenty years ago, I kept a certain kind of hogs that were DIFFERENT. I sent for good breeding stock to start with. At the end of the first year there was a fair number of these hogs running about the place. I fed them up and they grew pretty well. I would go out and look them over with a lot of pride. I'd count the dollars they were going to bring me some day.

My neighbors raised good, lard-type hogs -- BIG TYPE, they were, that dressed out to big, firm carcasses -- hogs that fattened well and could be put on the market early. These neighbors' pigs gained market weight in from 7 to 10 months. Our market wanted hogs weighing from 175 to 225 pounds. They produced heavy, first-class hams and bacon.

I thought my hogs should do the same. But they wouldn't. They were the long, lean, BACON-HOG type. Fine for the markets that want that kind. I wanted to put them on the market when the other men did. But I couldn't -- unless I FORCED them. So that's what I did -- fed them as long and as heavily as I could to make them KILL-OUT as heavy as my neighbors' pigs. All I got were hams and bacon with more fat than our market wanted -- and a high feed bill. So I decided to get rid of these DIFFERENT pigs and put myself in line with the rest of the farmers in my community. They had been in the business longer than I had and they knew the market better. They told me it doesn't pay to plant your fields to sunflowers when the market wants wheat.

There isn't really any BEST breed of hogs. There isn't any BEST breed of any kind of livestock. Some breeds are better than others for CERTAIN CONDITIONS. When two breeds are equally good for the SAME purposes and conditions,-- then you can choose the kind that happens to appeal to you most.

See Cy Miller's place over there? The one with the big, red barn. Cy knows that the thing that counts in dairying is to raise high-producing cows. And he knows that's about all that counts. He tells me that by increasing the feed he is giving his cows,--and then CHECKING on their MILK RECORDS,--he has found that some of his cows respond to this better treatment and pay higher profits on the increased allowance of feed they get. In other words, Cy has found that there's a certain point when dairy cows are most profitable. The breed doesn't matter much, here. What matters is TYPE AND QUALITY OF THE COWS THEMSELVES. Cy has studied his records and his cows. He is raising the best producers he can. Cy is getting a fancy price for his milk. He has a good bank account. We are trying to do what Cy is doing with his dairy cows.

Another thing you'll notice-- the MOST SUCCESSFUL cattle feeders in this part of the country have studied the feeding question and are raising lots of hay, silage, and other cheap feeds. They are feeding it to their cattle and getting high returns. We have plenty of grass here,-- so we are raising cattle that are good feeders on grass, and corn -- which is another feed we can raise here at low cost. Out on the ranges where feed is not so plentiful and where the cattle have to go farther to get it, they tell me the stock raisers keep RANGEY, HARDY, "RUSTLERS" that can roam over the hills and mountains without losing flesh. If a stock owner wants cattle that are good for beef and also milk pretty well, he can get DUAL-PURPOSE cattle.

Does it pay to keep purebred or high-grade stock? I think it does. When you find that a certain kind of livestock puts you out of the RED and

gives you a GOOD BANK ACCOUNT, you want to be sure you will have that kind ALWAYS. Like breeds like. You'll want purebred or high-grade stock, if you're wise. Don't trust to luck. Luck hasn't much to do with profits in farming. You can't take any kind of stock and trust to luck and good weather to give you the profits and good living you should get out of farming. These neighbors of mine know they can't afford to raise anything but the best,-- so they all have GOOD QUALITY STOCK.

Have you ever seen farms that looked more prosperous than these around here? You can see lots of money from this hill. Eb's barn over there is chock full of hay and grain. His silo's full and he's building another, and Eb has the stock to feed all that to. The subject of the next lesson is "Essentials of Successful Feeding" so I'll stop now and turn the microphone over to the next authority. Remember to write for enrollment cards so that we can send you more complete information by mail. See you again next Monday.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

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PROGRAM U. S. FARM RADIO SCHOOL RELEASE Wednesday Oct. 6,

U. S. Department of

Short Course -- "Fall Management of Poultry."

Lecture No. 1 - "How I Built My Poultry Houses."

SAMPLE (Not for release)

ANNOUNCER: This evening marks the opening of Uncle Sam's Poultry Radio School. Students already enrolled and others who wish to become members will give us their attention for the next few minutes. Most of you will make valuable use of the printed talks which are sent without charge to those who request enrollment blanks. Send your requests to this station. We are now going to introduce our spokesman for Dr. M. A. Jull, expert on poultry raising, of the U. S. Bureau of Animal Industry. From him you will hear the first of our regular Wednesday lessons in poultry.

This time of year, I believe a pullet in the henhouse is worth two roosting in a tree. Wait until I light the lantern. I want to take you with me on the rounds to the henhouses. I do this every evening before I settle down. Nice moon tonight, isn't there? Watch out for that fence.

Remember the old days when we figured most any place was good enough for the hens? That was when eggs were worth a dime a dozen. We'd let them roost in the trees in Summer and on the manger in the cow barn in the Winter time. I don't blame the hens for choosing the trees, then.

Do you see any pullets in these trees? Or on the binder tongue? Of course you don't. There aren't any there. I couldn't have said that a year ago. Here's one of the new houses. It's really a brooder house, but I use it for the pullets before they start to lay. It's called a colony house. We keep it out in the orchard all Summer. Just move it to a new, clean ground now and then.

The county agent told me a poultry house must be tight and light and pleasant. That's really about all you have to remember. You'll notice this house has plenty of window space. And floor space. There are 35 pullets in here. The house is 12 feet square. That allows about 4 square feet for every chicken. That's just about right. Yes, I leave the windows open in warm weather and close them in the fall. When the weather is severe we drop a muslin-covered frame down over the other openings. That keeps the house warm and dry. Dry, fresh air and plenty of it. That's what keeps

pullets thrifty and healthy. Drafts and poor ventilation certainly ruin poultry profits. Do you feel any drafts in here? Is it wet? Is there a bad smell? No sir! I built this house when I found my pullets would rather roost outside and take their chances with Jack Frost and the varmints than to go into the old, dark, damp shed. I tore it down and used most of the material again. We made this house out of ordinary tight board siding, nailed on 2" x 4" studding. That makes a good, clean job. It depends a lot on the cost and the climate, what kind of roof you us. This house has tight floors.

We built this house on 4" x 6" runners. A team pulls it wherever we want it to go. Do you see those openings between the rafters, at the back of the house? That's a new wrinkle in ventilation and a good one. But besure this space is closed tightly in the fall.

How much did this house cost? About $50 for material. I figure the labor is worth about $33. That makes $83 for all. For a light house like this, the material shouldn't cost more than $1.40 for each chicken in it. It costs more to build the permanent laying house I'm going to show you directly.

These pullets look comfortable, don't they? I believe in making everything on my farm happy. Milk from contented cows. Eggs from singing hens. I just naturally sleep better when the livestock is as well taken care of as myself.

Now let's go out to the laying house. It isn't far.

You'll notice this laying house is built to stay. It is 18 feet deep and 44 feet long and will take care of a couple of hundred hens but I haven't that many in it now. It's built on a concrete foundation which starts below frost line. We bolted the sills to the foundation and nailed the studs on them. The walls are made of matched siding. The roof is wide, matched sheathing laid on 2" x 6" rafters and then covered with prepared roofing. You see there's plenty of window space here, too. Good ventilation without drafts. That spells healthy hens. About one-third of the front is in windows and openings. These openings are either partly or entirely covered with sliding muslin-covered frames when it is cold or storming. I aim never to let the floor, litter, or hens get wet.

About all you need inside are nests, dropping boards, roosts, and a few hoppers for the mash, grit, and oyster shell. These I built myself, according to college plans. I have one nest for every six hens. The nests and the rest of the inside fittings aren't fancy. It isn't necessary.

The more joints and cracks there are the more places there will be for lice and mites to hide. Everything should be made so it can be cleaned easily. The roosts are laid in grooves cut in side supports nailed to the wall studding. They can be taken out for spraying and cleaning. They won't turn when the hens perch on them. Even the hoppers are made so they are easy to spray and disinfect. The windows are high, you'll notice. That allows the sun to reach back to the roosts and kills the germs that are hiding there. The nests should be fairly dark to keep the hens from eating eggs. I built these nests under the dropping boards, about two feet off the floor. There's a door, hung on hinges, that swings down in front of them.

Fresh air, the right kind of food, and exercise,--that's our recipe for getting eggs. I make mine exercise by throwing the grain in this deep straw litter. You ought to see the hens scratch for it in the mornings, and listen to them sing.

Well, that's all on houses until next Wednesday evening. Everyone who has not handed in their name and address do so at once so that free material may be sent you.

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PROGRAM U. S. Farm Radio School First RELEASE Wed. Oct. 6

Short Course -- Common Poultry Diseases

Lecture No. 1 -- "How I Keep My Poultry Well."

ANNOUNCER: This evening marks the opening of Uncle Sam's Poultry Radio School. Students already enrolled and others who wish to become members will give us their attention for the next few minutes. Most of you will make valuable use of the printed talks which are sent without charge to those who request enrollment blanks. Send your requests to this station. We are now going to introduce our spokesman for Dr. M. A. Jull, and other experts on poultry raising, of the U. S. Bureau of Animal Industry. From him you will hear the first of our regular Wednesday lessons in poultry.

* * * * * *

That old six word sentence, A STITCH IN TIME SAVES NINE, is sure true when it comes to keeping hens well. Not much use doing anything with a dollar hen when she gets a bad case of roup except cut off her head - then clean up, so the rest of the flock won't catch it. Best way is to keep roup out of the flock altogether. PREVENTION IS BETTER THAN CURE every time.

I keep my hens healthy, by keeping the old weather eye open for disease all the time. I believe in curing a cold, by not catching one.

Remember the days when the wife would say, "Well, little Percy's got to catch the measles some time -- they all get it sooner or later -- might as well let him get 'em while the weather's warm"? With all respect to the beliefs of earlier days, I quit taking stock in that motto when I left off wearing red flannels to cure rheumatism.

Come out here with me and I'll show you how I fight disease in my flock.

Disease and I are sworn enemies. You'll get to know that when you see the sunlight streaming through the windows, lighting up the dark corners of the hen-house. Well, here we are. Don't bother to shut the door, -- I let the chick-ens run out these bright Indian Summer days.

I read a lot of bulletins from the Department of Agriculture. Get the information straight from headquarters. Well, somewhere, I read this: -- (remember it because it's true) -- EVEN UNDER THE MOST FAVORABLE CONDITIONS THERE IS LIKELY TO BE CONSIDERABLE MORTALITY IN THE POULTRY YARD. HENCE THE IMPORTANCE OF TAKING NO CHANCES OF INVITING MORE LOSSES THAN ARE NECESSARY. Believe me, I don't INVITE LOSSES to come and visit me.

I'ts true, all right, that lots of chickens die. That's why you've got to keep disease out of your yards.

Weekeep more chickens than most other farm stock. A farmer probably has a flock of a hundred chickens to ten cows, six or eight horses, a few sheep, a dog and a couple of cats. The chickens are often shut up tight. Then when disease begins in the flock, almost before the farmer knows it, the hens are sitting around on the roosts and getting pale. Then they die. Don't let disease get started. If you keep the birds healthy, they'll be better able to resist sickness. Some of the best poultry farmers owe their success to this principle.

There are five main causes of sickness in chickens: Filth, dampness, poor ventilation, wrong feeding methods, and bringing in sick birds from other places. That's what county agent Robbins says. If you want to keep your chickens healthy, take good care of them. See that everything about the poultry house and yards is kept clean. I take out the droppings every day. That helps to keep the air pure and fresh. A lot of disease germs go out of the coop when I take the droppings out. Then I sprinkle ashes on the dropping boards. I clean out the old straw from the nests and put new straw in every 3 or 4 weeks. You'll notice I've just finished whitewashing the inside of the house. I do this every October. You can make the whitewash by slaking lime in boiling water and then thinning it out so it can be put on with a brush. I put in about 4 ounces of carbolic acid to each gallon of whitewash. That knocks the bacteria. Every Spring and Fall I plow the runs to bury the droppings and to turn up fresh earth.

Then I keep the drinking dishes and feed troughs perfectly clean all the time. Once a week I wash the drinking fountains out with boiling water. About every 4 months I clean out the hoppers and put fresh shell and grit in them -- if the old isn't gone yet. Once in a while I give the whole flock a dose of Epsom salts.

I've been saying: KEEP THE HENS WELL -- DON'T LET DISEASE GET A START. That's fine, -- the thing to do, -- but sometimes disease gets a start in spite of all your care. When it does, clean up the coops as well as the hens. Disinfect the houses. The Government bulletins told me to apply the disinfectant thoroughly to the interior of the houses. Work it into all the cracks and crevices. Spread it over the ceilings, floors, roosts, dropping boards, and the nest boxes. When you wash the feeding and drinking troughs with boiling water, leave them out in the sun to dry. Use a good spray pump for the disinfectant. Protect your hands and face when you do the spraying. Ordinary limewash makes a good spray. If you want to make doubly sure that you'll kill the bacteria, the lice and mites, and other parasites, -- add 6 ounces of crude carbolic acid to each gallon of limewash. Cresol is one of the best disinfectants. Buy the compound solution of cresol and add 1 pint of it to 10 quarts of soft water. That makes a good spray. A 5 per cent solution of carbolic acid (1 pint of carbolic acid to 10 quarts of water) is good too. Choose the disinfectant that is most convenient to get or make, but be sure it is a disinfectant that will kill bacteria. There are some disinfectants on the market that are not very effective.

Usually it doesn't pay to treat a sick chicken. There's no profit in spendint 2 dollars to cure a dollar hen. If the chicken gets pretty sick, use the hatchet -- unless the hen is an especially valuable layer, breeder, show bird,

or all three. Always take sick chickens out of the flock. Sometimes, if they aren't too sick, just letting them run out in the open, away from the rest of the flock, will cure them. Be careful that you don't spread the disease yourself. If you treat a sick bird and then go right in the henhouse and handle the water dishes, you might spread the disease to others in the flock.

Reasonable care of the chickens will prevent a lot of sickness, especially this time of year. Chickens breathe fast -- give off a great deal of moisture. That is why it is necessary to have the houses dry and well ventilated. During the Spring and Summer, chickens on free range get plenty of exercise. About now, we shut them up in close houses and wonder why they get sick. If you keep the birds shut up close, see that they get a lot of exercise during the day. Scatter the grain in the litter so they'll have to dig for it. The hens should be kept just hungry enough so they'll work for their feed. But don't leave any wet or spoiled grain in the litter.

Experts tell me to remember the five main causes of poultry diseases, and then see that I have something to fight each one of them with. So I do this: instead of letting the houses and yards get filthy, I keep them clean; I have the houses dry instead of damp; for poor ventilation I have substituted muslin-front windows and ventilators at the back of the coops; I feed the birds a variety of clean, sound food instead of making them eat sour, unclean food; and, finally, I take sick birds away from the rest of the flock and never bring a sick one in.

That's why you hear these hens singing in here. PREVENTION IS BETTER THAN CURE. Sick hens don't lay. But I can prove that well hens do.

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ANNOUNCEMENT: See introduction to lesson which follows on subject, "How I Built My Poultry Houses."

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PROGRAM U. S. FARM RADIO SCHOOL RELEASE Second Release Wed., Oct. 6.

Short Course -- "Fall Management of Poultry."

Lecture No. 1 - "How I Built My Poultry Houses."

ANNOUNCEMENT: The second poultry short course starting tonight is equally as timely as the one on diseases. It is a discussion of housing problems. Both will continue over a period of 8 weeks. The two brief radio lessons are supplemented by printed material furnished without charge to all who request enrollment cards from this station. "How I Built My Poultry Houses" is the title of the next lesson told by our spokesman for the U. S. Poultry authorities.

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This time of year, I believe a pullet in the henhouse is worth two roosting in a tree. Wait until I light the lantern. I want to take you with me on the rounds to the henhouses. I do this every evening before I settle down. Nice moon tonight, isn't there? Watch out for that fence.

Remember the old days when we figured most any place was good enough for the hens? That was when eggs were worth a dime a dozen. We'd let them roost in the trees in Summer and on the manger in the cow barn in the Winter time. I don't blame the hens for choosing the trees, then.

Do you see any pullets in these trees? Or on the binder tongue? Of course you don't. There aren't any there. I couldn't have said that a year ago. Here's one of the new houses. It's really a brooder house, and I use it for the pullets until they start to lay. It's called a colony house. We keep it out in the orchard all Summer. Just move it to new, clean ground now and then.

The county agent told me a colony house must be tight and light and pleasan That's really about all you have to remember. You'll notice this house has plenty of openings. The windows are closed only on cold nights when the chicks are young And floor space. There are about 75 pullets in here. The house is 12 feet square. When the weather is severe in the fall we drop a muslin-covered frame down over the other openings. That keeps the house warm and dry. Dry, fresh air and plenty of it. That's what keeps pullets thrifty and healthy. Drafts and poor ventilatior certainly ruin poultry profits. Do you feel any drafts in here? Is it wet? Is there a bad smell? No sir! I built this house when I found my pullets would rather roost outside and take their chances with Jack Frost and the varmints than

to go into the old, dark, damp shed. I tore it down and used most of the materia again. We made this house out of ordinary tight board siding, nailed on 2" x 4" studding. That makes a good, clean job. It depends a lot on the cost and the climate, what kind of roof you use. This house has a tight floor.

We built this house on 4" x 6" runners. A team pulls it wherever we want it to go. Do you see those openings between the rafters, at the back of the house? That's a new wrinkle in ventilation and a good one. But be sure this space is closed tightly in the fall.

How much did this house cost? About $50 for material. I figure the labor is worth about $33. That makes $83 for all. For a light house like this, the material shouldn't cost more than about $1.00 for each chicken in it and it should last a lifetime. It costs more to build the permanent laying house I'm going to show you directly.

These pullets look comfortable, don't they? I believe in making everything on my farm happy. Milk from contented cows. Eggs from singing hens. I just naturally sleep better when the livestock is as well taken care of as myself.

Now let's go out to the laying house. It isn't far.

You'll notice this laying house is built to stay. It is 18 feet deep and 44 feet long and will take care of a couple of hundred hens but I haven't that many in it now. It's built on a concrete foundation which starts below frost line. We bolted the sills to the foundation and nailed the studs on them. The walls are made of matched siding. The roof is wide, matched sheathing laid on 2" x 6" rafters and then covered with prepared roofing. You see there's plenty of window space here, too. Good ventilation without drafts. That spells healthy hens. About one-third of the front is in windows and openings. These openings are either partly or entirely covered with sliding muslin-covered frames when it is cold or storming. I aim never to let the floor, litter, or hens get wet.

About all you need inside are nests, dropping boards, roosts, and a few hoppers for the mash, grit, and oyster shell. These I built myself, according to college plans. I have one nest for every six hens. The nests and the rest of the inside fittings aren't fancy. It isn't necessary.

The more joints and cracks there are the more places there will be for lice and mites to hide. Everything should be made so it can be cleaned easily. The roosts are laid in grooves cut in side supports nailed to the wall studding. They can be taken out for spraying and cleaning. They won't turn when the hens perch on them. Even the hoppers are made so they are easy to spray and disinfect. The windows are high, you'll notice. That allows the sun to reach back to the roosts and kills the germs that are hiding there. There are plenty of

cotton curtains for the other openings to give ventilation on cold nights when the curtains are lowered. The nests should be fairly dark to keep the hens from eating eggs. I built these nests under the dropping boards, about two feet off the floor. There's a door, hung on hinges, that swings down in front of them.

Fresh air, the right kind of food, and exercise, -- that's our system for getting eggs. I make mine exercise by throwing the grain in this deep straw litter. You ought to see the hens scratch for it in the mornings, and listen to them sing.

Well, that's all on houses until next Wednesday evening. Those who have not handed in their names and addresses, do so at once, so that free material may be sent you.

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ANNOUNCEMENT: This talk concludes the poultry lessons for this week. We urge you to send for enrollment blanks at once in order that the U. S. Department of Agriculture may place you on their mailing list for the printed material -- an important supplement to the radio school. The themes discussed tonight will be resumed at this period next week.

UNITED STATES DEPARTMENT OF AGRICULTURE
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PROGRAM U. S. RADIO FARM SCHOOL RELEASE Friday, October 8.

Short Course -- "Dairy Herd Selection and Improvement."

Lecture No. 1 - "Culling the "Boarder" Cows."

ANNOUNCER: Uncle Sam's Radio Farm School will now come to order. This is the first regular Friday meeting of the Dairy class. We are going to devote the first half of this evening's School to instructions on culling the "boarder" cows. Material is furnished by the U. S. Bureau of Dairy Industry. The lessons will be continued at this period every Friday. Enroll for the dairy course and you will be sent printed copies of all talks. Write either this station or the Department of Agriculture for an enrollment blank. We now introduce your school master Mr._____.

* * * * *

I wish you would all come out to the barn of this successful dairy farmer with me. I believe it's best to talk cow-talk out among cows. Then we can point out the good and bad features.

The man who owns this particular dairy is very successful. When he first started, he had troubles aplenty. Some of his cows paid; -- some of them didn't.

See that cow standing over there? No, not the one drinking from the water trough. Her appetite is better than her production record, that's my guess. You can't always tell by looking at a cow how many pails she'll fill. We'll run her record down in the herd book when we go back to the house. For all I know, she may be paying fancy prices for her feed.

A few years ago, this particular dairyman started with just an average herd of milkers. He soon found that about one-third of his cows were star "boarders." Another third just paid for their keep. The rest paid profits. In many dairy herds the profits of the highest producers just about balance the losses of the lowest. The owner often comes out in the red at the end of the year.

Another dairy farmer, down the road from here, started keeping individual cow records a year ago. He owned 14 cows. At the end of the first year, his

records showed that only half of his cows were paying. The others were not paying for their hay and grain. It reminds me of the Hebrew-Egyptian story of the 7 lean years that ate up the 7 fat years. Those 7 "boarder" cows certainly ate up the profits of his 7 high-producers. He has only ten cows now but they are good ones and he's making money.

The day the 7 "boarders" made their visit to the butcher, profits began on that farm. Close culling changed a losing proposition into a winning one. A dairyman who keeps "boarder cows" is in the same boat with the chap who paid five dollars for a little pig. Fed it five dollars worth of feed. Then sold it for ten dollars. He said, of course I didn't make anything on the pig but I had the use of it for six months.

Good business methods today don't permit feeding stock that just breaks even. It takes profits to make up the prosperity you can see around here. "Boarder" cows won't buy little Johnny new shoes.

It took the owner of this herd a long time to find out just which cows were really paying for their "board". It's not always easy to tell. This man began keeping records of their production. It wasn't long after that before he planned a little week-end trip to the butcher for ten of the "boarders."

After he decided to keep records, he bought a substantial, low-priced herd-book. In this book he keeps the production and income records of every cow. He figures in the cost of feed,-- the age of the cow,--the cost of labor, -- the weight and value of feed each cow eats, -- and her individual production as well as the price of her dairy products. He has been doing this for a year. He calls it his "Doomsday Book" because it dooms so many lazy cows.

This is the way to keep the record: From the daily record of each cow compute her monthly record. Then copy the monthly record in the herd book each month throughout the year. On the daily record sheets there should be a space for the cow's name, -- number, -- her record, -- her sire and dam. Then there is a space for the quantity of milk she gives each day, -- the value of the milk at the regular market rates, -- the quantity and cost of the feed she eats. Her complete record is there in that "Doomsday Book."

At the end of every month, go through the book and total and average the figures. And at the end of the year, draw up the grand totals. To [illegible] stay in a good herd, each mature cow should produce in a year at least 6,000 pounds of milk and at least 240 pounds of butter fat. If she is a

two-year-old, she should produce at least 4,200 pounds of milk and 168 pounds of butter fat. If she is a three-year old, she should produce at least 4,800 pounds of milk and 192 pounds of butter fat. If she is a four-year-old, she should produce at least 5,400 pounds of milk and 216 pounds of butter fat. You can't expect a young cow to do as well as a mature animal.

If you're new at the record keeping game, you'll likely find many of your cows are not paying their keep. As a rule these cows should be replaced by high producing young cows bred and raised in your own herd.

Nextweek at this time our lesson is going to be on "selecting animals for the foundation herd." I want you all to be on time. Those who haven't already enrolled should send in their names at once so that a copy of all lessons can be mailed you regularly. Stand by now for the next announcement.

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Short Course in Dairying -- "Production of Clean Milk."

PROGRAM..... RELEASE.....

Lecture No. 1 -- "Clean Milk." Second Release Fri., Oct. 8

ANNOUNCEMENT: We are starting two dairy short courses tonight. The first, on culling the boarder cow, you just heard. All the dairy courses are prepared from material furnished by the U. S. Department of Agriculture. "Clean Milk" is the title of the first talk of the second series on the general subject, Milk. Production. Our lecturer will take you with him now on a little inspection tour.

* * * * *

Jim Doe of Bluefields thinks milk is clean when he can't see dirt in it. He thinks a microscope is something you look at the stars through. He has never looked through one himself, and so Jim is totally unaware of the wide world of life beyond the field of human vision.

Jim has a lot of milk returned marked SOUR. Jim's milk floods the sour milk market. Sour milk makes LEAN profits. So Jim has done a lot of thinking in the dim watches of the night about this sour milk business. You see Jim isn't scientific nor very practical either. He doesn't know that BACTERIA make milk go SOUR. He doesn't pay any attention to dirt in the milk. He can't see the bacteria in there. He think's he's doing the best he can.

Let's take a look at Jim's place. It's just around that bend in the road. Here we are. There's Jim's old shed where he houses his ten cows. Come on in.

It is dark in here, and pretty damp. In the Winter time, I have an idea it gets cold. The place isn't at all roomy. Jim has to crowd his cows to get them all in. There can't be much ventilation because the windows are small and not placed right. He keeps his ten cows in this place, -- and yet he could produce clean milk if he OBSERVED A FEW PROPER PRECAUTIONS. It really isn't so much the barn, you know, as it is cleanliness of containers, cows, and milkers. The reason why Jim's milk comes back marked SOUR is because he doesn't send it out clean and reasonably free from bacteria. You have to fight these bacteria even if you can't see them. Jim thinks it's a good idea to wash the milk pails, so he washes them in warm water and gives them a swab or two with an old rag that looks as if it had served in many such campaigns. He doesn't worry about keeping the cans clean, either. The only cooling his milk gets is when it stands out on that platform there by the door while the men are milking the cows. As Jim doesn't cover the cans up while the milking is being done, considerable dirt blows into the milk.

Well, that's the extent of Jim's efforts toward clean milk. Jim'll learn some day. He can't hold out against better methods much longer.

Now, to improve his methods and to get clean milk that would net him a decent profit in his dairy business, Jim wouldn't have to go to any great expense. He wouldn't have to build a big, new barn and equip it with all the best devices. But he would have to do these things: First, keep his cows clean and healthy; Second, milk with clean dry hands and never let a person milk his cows when he is sick or carrying the germs of communicable diseases; Third, keep all milk containers scrupulously clean and sterilized; Fourth, use small-top milk pails; and Fifth, keep the milk cooled to the proper temperature from the time of milking to the time it reaches the market.

All those things can be done with a very reasonable outlay of time and money. Of course, better barns and equipment would help. They conserve time and save money. Time is money, these busy days. But Jim can produce CLEAN MILK at a profit right here on this farm. I'm going to have the Department of Agriculture send him bulletins on the subject, especially Farmers' Bulletin No. 602, "Production of Clean Milk"; and No. 743, "The Feeding of Dairy Cows." Jim should know that there are men who have devoted their lives to solving just such problems as his and that their advice is worth money to practicing dairymen.

Jim calls the modern dairymen, -- who are making two or three times as much as he is with the same number of cows, -- "dude" farmers because they use small-top milk pails, sterilize their milk containers, build good silos, barns, and dairy houses on their farms.

Jim's going to wake up some morning and see a great light. He could learn from his neighbor, Dan Dibble, who lives down the road. We'll go down and see Dan's place now. Dan has a mind as open as a book. He believes in the best things and he's willing to try things once when they are recommended by men he trusts.

This is Dan's place. There's Dan himself out there steaming out his milk buckets and cans. He keeps sixteen pure-bred cows and they average something over 11,000 pounds of milk and 400 pounds of butter fat a year per head.

"Hello, Dan. Don't mind if we look around a bit?"

I knew he wouldn't.

"Better come and go 'round with us, -- unless you're too busy."

Notice how light and sunny it is in here. Dan has about 4 square feet of window glass to every stanchion, well distributed 'round the walls. Plenty of fresh air, too. Air you like to breathe. The walls are tight. So are the floors and ceilings. This place can be cleaned out easily, -- and it is.

Even if it does get pretty cold in the Winter, the cows must have lots of fresh, pure air. At the same time, they must'nt freeze to death getting it. See that ventilating system Dan has put in. His barn is comfortable and splendidly ventilated, even on the coldest days.

You'll notice he keeps his barns and yards clean. The yard is graded so the rain funs off. He hauls the manure off onto his fields frequently. When he can't haul it to the field, he puts it in a covered manure shed. Notice the water buckets? These cows have plenty of fresh, cool water before them all the time. You won't find many flies in here, either. That's because he keeps the manure hauled out. Trapping and spraying also help. Flies are great carriers of bacteria. Keep them out, or better still, get rid of them.

For years Dan has been reading and talking a good deal about producing clean milk. He's a sort of crank on the subject. He got a good many suggestions from county agents. Also from officials of the creamery. They told him: "First, the cows' bodies must be clean. Wipe them off before milking with a clean, moist cloth. Then, the milk buckets, and all containers, must be strictly clean and sanitary. Scrub them out in warm water and a good washing powder, rinse them, and then steam them out. After the milk is produced, it must be kept cool so the bacteria won't grow and spread in it. Bacteria grow slowly when the temperature is kept below 50 degrees Fahrenheit. If the temperature goes up to 70 degrees, thousands will grow from a single bacterium in 24 hours. The milk should be kept at 50 degrees until it gets to market."

"You can't get pure milk from sick cows. If the cows have garget, tuberculosis, or some other disease, the milk can't be pure. The cows all ought to be tested for tuberculosis at least once a year. If they are diseased, cut them out of the herd. This means more profit from better milk.

"The trade demands the best milk all the time. To stay in business it's necessary to suit the trade." Dan decided this was a pretty sensible line of talk. He found that the relatively small amount of trouble and expense required to produce good milk is well paid for in dollars and cents.

If any of you want more information on this subject, just write in to the dairy specialists in the Department of Agriculture. They'll be glad to serve you. Or get in touch with your state agricultural college and your local county agent. You ought to be in close touch with them all the time, anyway.

Next time I'm going to give you a close-up of another good dairy farm and some ideas you will find of much value. Remember to enroll at once in order to get printed copies of all dairy lessons. You're dismissed now until next Friday.

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PROGRAM FARM SCHOOL — First RELEASE Mon.,Oct.11

Course No. 1 -- "Livestock Breeding".

Lecture No. 2 -- "Selecting Suitable Breeds and Types."

ANNOUNCEMENT: Again tonight we ask our listeners, especially those interested in livestock, to put aside other things for a few minutes and set in on Uncle Sam's Radio Farm School. You will hear two brief interesting topics from the pens of experts in the U. S. Department of Agriculture, and told you by our station school master who presides at this period on Mondays, Wednesdays, and Fridays. If you have neglected to write for enrollment cards do so tonight in order that you may receive copies of all printed material throughout the winter.

* * * *

What's the best radio? I don't know. What's the best automobile? I don't know. What's the best breed of hogs, of cattle, of sheep, of horses? I don't know. We might spend hours discussing the merits of each. In the end the selections simmer down to personal preference. Which one I prefer depends largely on the use to be made of it. I suppose the question: - what is the best breeds of one kind of livestock or another has been asked the Department of Agriculture thousands of times.

There is only one answer, - "I don't know". You prefer a heavy car, becaus it best meets your requirements. I demand a light one because it meets mine, cost also being considered. Perhaps you select a radio for distance. Your neighbor is satisfied with local programs.

About the same thing is true of livestock. I need a handy-size, general-purpose team of horses. Perhaps your work requires the heavy draft type. The breed of livestock you select for your business,- the same as the equipment you use on your farm - must satisfy your needs. And when you and thousands of your neighbors ask which are the best breed and type of livestock, all I can say is, "There is no best breed for all purposes. You must study the merits of each and select the one that will serve your own needs best."

Just as models change in spring hats, automobiles, and radios, there is also a gradual change in animal types. The 1925 models of cattle and hogs are of much different type than those of a century ago.

So it's a mighty good plan to give some careful thought to the question of present types also when you go about selecting livestock. Get all the information you can on the subject. Talk to your county agent and good breeders. Write your state agricultural college The government has issued a series of bulletins on this subject. They discuss the points of various breeds. They enable you to make comparisons and to form more accurate conclusions. Farmers have already requested tens of thousans of these bulletins and your copy is waiting to be mailed - you.

If you are wondering what is the best breed of beef cattle, you will find ten principal breeds to select from. There are six major breeds of cattle used for dairying. Nine breeds of light horses and six of draft horses. Those of hogs number fourteen. There are eleven distinct breeds of sheep. Chickens are even more numerous. There are forty-two principal breeds, with still more variet For instance, there are nine recognized varieties of Leghorns alone. Can you imagaine, - with this variety to select from, - that anyone would go about originating a new breed or variety to meet some special whim? Yet they do. It i usually beginners in the business who attempt it. Experienced breeders realize the heavy expense and doubtful results likely to attend their efforts.

It is a different matter if you wish to make a gradual change from common mixed stock to a standard recognized breed. Have your goal in mind and by carefully selecting the breeding stock, you can at least approach your ideal.

I don't know what is the best breed. But I do know that in deciding what is the best breed for my purpose, I would be governed to a great extent by which is the best established breed in my community. Some call this standardization. Neighborhood effort in raising the same breed or variety of stock offers many advantages. It might even pay you to set aside your personal preferences.

You and your neighbors have the same breed of chickens. Your community get a reputation. I am in the market for breeding stock. I go to this neighborhood for my stock. You get your share of the business. This is due to the advertisin value of the community. If you had a different breed, - but one just as good, - you would be at a disadvantage in selling your breeders. Then, too, you will find it easier to select the sires and other stock if the breed is numerous in your vicinity.

How successful are you in the purebred livestock business? Never mind the answer. Just tell me if you are a good judge of stock, - if you know the breeding principles, - and if you study the pedigrees of breeding stock available for use. It's upon these things that your success chiefly depends. It's true that you also need business ability in advertising and selling surplus stock.

If you're not already in the business it's much safer to begin small and grow into it, gradually. Most of the failures in the purebred business trace directly to large investments in purebred animals - and small capital in what is equally as important - experience. If you plan to grade up your livestock by the use of purebred sires, follow this simple suggestion: Get a male of the breed you prefer - and one which offers the greatest opportunity for success in your locality. Remember that the sire you select determines the breed and charact istics of the entire herd or flock a few years hence. That is, if you stick to th kind of sire that you begin with, and certainly you will do this.

Is it confusing to you, these terms - breeds and types of livestock? If they are, just think of them as a result of breeding for a special purpose. If you are wondering which is the best breed or type, consider the purpose for which you want them - and then decide which is best for that special purpose. Before

you make your definite decision, write to the Department of Agriculture for its bulletins on this subject. They're free and well-worth your study.

ANNOUNCEMENT: The next topic "Correcting Common Mistakes in Feeding" concludes Uncle Sam's livestock school for tonight. We ask you to join the thousands of other students who have already registered and are receiving printed lessons.

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PROGRAM U. S. FARM SCHOOL RELEASED on Oct. 11, 1926

Short Course -- "Feeding Farm Animals"

Lecture 2 -- "Correcting Common Mistakes in Feeding."

ANNOUNCEMENT: The second livestock lesson tonight is as short and snappy as the first. Our Schoolmaster will reveal next, some of the essentials in livestock feeding. We are still accepting enrollments in the U. S. Farm School and request those in attendance tonight, who have not already done so, to write to this station for enrollment cards, which, when filled in, entitle each student to all printed lessons - 192 in number. The Farm School material comes to you from the U. S. Department of Agriculture, spoken by our station school master.

Last Tuesday I was out to see Judd Tompkins' cattle. I'd been hearing rumors that Judd wasn't making a "go" of it on his place. Knowing that he started with first-rate stock and that the farm had been a prize one before he took hold of it, I wanted to find out at first hand just what was the cause of the trouble.

Well -- when Judd showed me his cattle, I was absolutely shocked. They were the poorest looking animals I ever saw on a self-respecting farmer's place. Maybe Judd saw the disapproving way I eyed them. Anyway, he immediately began to apologize.

"This dry spell we had this summer just naturally burned up the grass around here," he explained.

I thought to myself that the same dry weather had also scorched some of the neighbors' pastures where the cattle were still sleek and thrifty. Aloud, I said:

"You certainly can't make money producing beef without plenty of good grass. But silage is a feed to replace grass in summer, when grazing is short. You should have a reserve feed supply, by all means."

"I guess that's right," agreed Judd. "I'm going to take care of that next year."

When we went into the feed lot, I saw there were several things about his feeding that would need attention a good deal sooner than that. He had cattle of all different ages and sizes together. As usual, the older, stronger and more agressive animals were robbing and annoying the weaker ones. And I noticed that many of the troughs into which the fresh feed was being placed were dirty and sour with left-overs from former feedings. And from the looks of some of the new feed, it wasn't in any too good condition itself."

Those young animals over there don't seem to be doing very well," I ventured. "They look like they might not be getting enough feed."

"Enough? Judd questioned. Maybe not during the summer but the chances are they are getting all they need now - and more. Look at the feed they leave in the troughs."

"That is something to be avoided," I replied. "And it is usually best to keep stock ready for a little more feed than they are given. It looks as though you have gone from one extreme to the other, though. Underfeeding is much more common than overfeeding. It's mighty important, too, not to let young stock ever be crowded away from the troughs and racks by the older animals. I notice you have all sizes together.

"What would you do about it, feed 'em in different lots? Judd asked.

"I certainly would," I answered emphatically. "Every animal has a natural growing period and if it does not make its gains during that time, it won't do so afterwards -- regardless of how much feed you give it. Be sure that they get feed enough while they are growing."

"And," I added, "I wouldn't leave any left-overs in the troughs. Feeding equipment should be kept clean; stale feed gets in with the fresh and starts digestive troubles with the cattle. Its pretty apt to cause them to get off their feed."

Some of them do get off feed now and then." Judd admitted.

"It's generally money out of your pocket when they do," I said. "And it's certain they are more likely to go off feed when they have to eat spoiled stuff; spoiled by being left in the troughs or before it gets to the stock.

"I'm pretty sure I started these steers all right" Judd said. "I gave them practically all roughage at first and gradually increased the concentrates. That's the practice I've always followed."

"Absolutely right," I told Judd, "providing you took plenty of time to get them on full ration."

"Almost two weeks," he replied.

"Pretty swift, Mr. Tompkins. Four to six weeks is more like it. I'd say offhand that you increased the concentrates entirely too fast. Keep them a bit hungrier now for awhile. You'll notice that a steer's capacity for feed decreases as it becomes fat. That's the time to reduce roughage and crowd him with corn. At least two or three days before shipping, feed dry roughage, such as timothy or other grass hay and reduce all laxative feeds."

"It will be some time before I can cut out a load to ship I'm afraid,"

Judd remarked. "I'm wondering if these open sheds will be enough protection during cold weather."

"Yes," I said," experiments show that during winters of ordinary severity fattening beef animals do as well in open yards as in warm barns. Cattle are often fed with good results in open yards with no protection other than wind breaks."

"Where are your hogs, Judd?" I asked, noticing that he was feeding whole grain. "Not a plagued pig on the place," he said, "and glad of it with hog cholera cropping out again."

"Unless you get a hundred pound hog following each one of these thousand pound steers, it's going to play havoc with your profits," - I couldn't help the remark. And we let the matter drop there.

I know Judd well and like him personally. He got off on his wrong foot feeding cattle and just is a little touchy about it. If he had been in a better humor I'd like to have pointed out some other leaks in the feeding lot that might have been plugged. His cattle looked as if several of them were lousy and the rats were making a dent in his corn crib. His feeding arrangement was awkward. His ration wasn't the one that makes the greatest gains at the least cost. His two-year old steers, weighing around a thousand pounds were getting 20 lbs. of corn, 1 lb. of cottonseed meal to 5 lbs. of mixed hay. I knew that they should be getting 2 lbs. of cottonseed meal instead of 1 lb. to make the best gains on that ration.

There are certainly a great many things that count, both the little and big ones, in feeding livestock. When I got back to town I found an extra copy of a little handbook for better feeding of livestock, published by the U. S. Department of Agriculture. I mailed this out to Judd and hope he reads it. If any of you folks haven't a copy of this little publication I'd suggest that you write for it at once.

ANNOUNCEMENT: That concludes the U. S. Livestock for this time. When you write for the feeding hand book, also request an enrollment blank. You are missing a splendid opportunity if these printed supplementary lessons are not coming to you. Your request to this station will be referred to the U. S. Department of Agriculture at Washington, under whose auspices this school is conducted.

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PROGRAM U. S. FARM SCHOOL RELEASE Wed., Oct. 13.

Short Course -- "Poultry Management."

Lecture No. 1 -- "Culling the Laying Flock."

ANNOUNCEMENT: Again tonight we call together the students of the U. S. Radio Poultry School. Our first lesson is Culling the Laying Flock. If you wish to join the class, which now numbers into the thousands, request an enrollment blank, which, when filled in and mailed to the Department of Agriculture, will bring to yo 192. printed lessons which supplement these radio messages.

Up go the egg prices!

You remember the old story about the hen that laid the golden eggs?

That story must have been started about this period of the year! Anyway, about this time every fall you hear some fellow complain that his hens always stop laying when eggs begin to bring top prices. It's usually the poultryman on the next farm or just up the road a little piece, who seems to be making the profits.

A young fellow asked me the other day how to get his hens to laying these 'golden eggs!

"I don't recall that ages were mentioned in that old story," I said, "but most probably 'the hen that laid the golden eggs' was a pullet."

"How's that?" he questioned.

"During September and October, laying hens usually go through the molt. During that time, egg production goes down and egg prices go up," I explained. "So you see, the idea is to get the pullets into egg production as soon as possible The more eggs the pullets lay in the fall of the year, the greater the profits -- you should put the pullets into their laying quarters about one month before they are ready to lay."

"I have a fine flock of 200 pullets" he informed me.

"Well, my suggestionswould be to get rid of about 50 of those," I said.

"What's the idea?" he asked. "They're all first-class stock."

"Yes, I know," I replied, "But it might pay you to put only 150 of the best in the laying house rather than the entire 200. Fifty of them might prove to be poor producers. And a poor producer will mean a loss instead of a profit. A care-

ful culling of the pullets before putting them in the laying house will pay well."

"But how are you going to tell which ones to select -- how are you going to know which ones will prove to be the good layers, before they've laid an egg?" He seemed puzzled.

"Select only healthy, vigorous pullets. Those that have grown well and have good body size." I advised him. "Choose those with bright, full eyes, with good width of the head and back and good depth of body, - and with bright yellow beaks and shanks. The pullets which mature early make the best layers. Leghorns should commence laying at about 5 months of age and heavier breeds at about 6 months of age."

He thanked me for my suggestion. I guess he was one of those fellows who just as soon as they get an idea firmly fixed in their heads, can hardly wait to put in into action. As he started, to leave, I called him back:

"I suppose you know there are some standard disqualifications that you have to pay attention to, if you don't want your whole flock to soon lose much of its breeding value?" I asked.

From the blank way he looked, I figured he must be new at the business, so I explained that single-comb breeds should not have side sprigs or little projections on the side of the comb,- and that all clean-legged breeds should be free from stubs or feathers growing between the scales on the shanks and toes.

Then, I went on to say, that great care should be used in selecting pullets that are reasonably true to breed type, and are of good color. For instance, Plymouth Rocks should not be of the Leghorn type. White should be white, and not show brassiness of colored feathers. Colored fowls should be as nearly standard color as possible.

I cautioned him that he should handle his pullets as carefully as possible, I went on to suggest that he be sure to have the laying house thoroughly cleaned and disinfected - ready for the pullets. And that just before he put them in the house he rub a few pinches of commercial sodium flouride over the different parts of the body of each bird to free it of lice. That he keep the pullets in their new quarters for at least one night and until just before roosting time on the second day if they are to be given free range.

"How about weeding out some of the older layers?" he asked.

"Sure," I answered, "this is just the time to do it. There is no sense feeding hens through the slack season, if they're not going to make up for their keep. You should cull the entire laying flock to remove the poorest layers and save the best for layers the second year."

"You know," I went on, "egg production of average hens decreases about 25 per cent each succeeding year. Hens that laid poorly as pullets will decrease in production faster than hens which laid well in their first year. Leghorns usually keep up better production in the second laying year than heavier breeds."

"About how many should be culled?" he asked.

"You should get rid of half of all the flock?" I told him. "Culling saves feed and improves the quality of the yearlings which will be used for breeders the next spring."

He hesitated. I saw there was something on his mind that he wanted to ask. Finally, however, he said. "Would you mind coming around to my place and showing me the hens I ought to keep and those it would be good business to get rid of."

"How do you know that this hen is a good layer and that one a poor layer?" he questioned.

"Well, you see that one I picked out as the poor layer has already shed a lot of his feathers, while this other one hasn't started to molt. The better producers continue to lay late in the fall and therefore do not molt until late.

"That one I picked out as the poor layer you will notice," I continued, "has a bright yellow beak and shanks. The legs of hens that are naturally yellow in color are pale and faded in the fall if they have been laying heavily.

In culling, just bear in mind, that poor layers usually molt earlier than good layers. That poor layers show much more yellow in their beak and shanks than good layers. That good layers usually have a bright, full eye, good width of head, good width and depth of body -- but not tending to sag down behind. That the skin over the body of a good layer is thin and fine in texture while that of a poor layer is frequently thick and coarse. Leghorn hens to be saved should weigh at least 4 pounds, while Plymouth Rhode Island Reds and Wyandottes should weigh from five to six pounds each.

All these points don't necessarily agree in the same hen, but when you find the majority of these characteristics in one hen, you can pretty well determine whether she should be sent to market or kept to produce eggs.

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Radio Service

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PROGRAM..... U. S. FARM SCHOOL

Second ~~Release, Wed. Oct. 13~~ RELEASE

Short Course -- "Poultry Houses."

Lecture No. 2 -- "Important Points in Construction."

ANNOUNCEMENT: The second lesson tonight is a subject of wide interest -- poultry houses. It's brief but full of good suggestions. If you are not receiving the printed material that goes free to all enrolled students in the U. S. Radio Farm School, write this station or the Department of Agriculture for enrollment blanks. Now for the lesson.

Poultry houses. I like to talk about them. I like to plan them. I like to think of the poultry house as a home for a lot of little busy-body pullets or hens. I can close my eyes and see my ideal poultry house. I wish that I could describe it, and recommend it to you. But my poultry house likely wouldn't suit you. Perhaps your idea wouldn't suit me. That's all because we both have different conditions and purposes for them. There are some general principles--some very good ones--that we both can use and should use.

You want your birds comfortable--and so do I. Suppose we agree on that point and make some plans together. Let's provide plenty of room--an abundance of fresh air--and make mighty sure that the house will always be dry. We'll have to build this house so that the fresh air has a good circulation, without causing any drafts.

To talk about this type of a house--one with plenty of fresh air, one that is always dry and one without drafts--is to talk about--healthy hens. We both know that having healthy hens is one of the secrets of the poultry business.

When you find moisture on the walls and ceilings of the house, it's a sure indication that the ventilation is poor. If that's the case, disease is stalking near.

Chickens breathe fast. The moisture they give off, contains carbon dioxide, as well as other injurious gasses. It falls to the floor if the circulation of air isn't good. Then the atmosphere soon becomes very damp.

In building our new house let's think of the windows for the purpose of giving an abundance of light--and also for providing fresh air. Let's not have too much glass, as it makes the house too warm in the daytime and too cold at night. Instead of glass, we'll use cotton cloth. We'll leave the cloth sections open all the time except during storms and very cold weather.

We'll make this house convenient as well as comfortable. If it's a convenient size and shape we can more easily do the necessary work to keep it comfortable. We'll make the hoppers large enough to hold good quantities

of feed--and build the windows so that they can be easily adjusted--and arrange the nests so that the eggs may be gathered easily--and so that they may be removed for cleaning.

The house I'm talking about is not an expensive one. But it must be durable. It is located conveniently and is in a shelter of large buildings or trees to protect it against winds. It is built on soil that is naturally dry and well drained. I faced it South. In some cases it may be better to face it slightly southeast.

I built it out of well-seasoned wood. Green wood warps and leaves cracks, which permits drafts. As a rule, yellow pine is used in the construction of the poultry house. Concrete for the foundation and floor because it is durable and sanitary. For the roofing material, shingles or specially prepared roofing.

The size of our poultry house will depend on the number of birds to be housed. It is not a good commercial practice to keep too many in one flock. One hundred is a good number. Four square feet of space per bird is a good, safe working rule. It's well to give them even more, if the cost of construction per bird isn't too high.

Remember that a long, narrow house is colder than a short, deep one. That's because there's more chance for drafts. In a long house, built to accommodate a large flock, partitions should be placed about every twenty feet. Build the house narrow enough to allow the sunlight to reach nearly every part of the building--but not too narrow. Fifteen feet should be about the minimum depth.

The cost of the building will depend somewhat upon the shape of the roof. The steeper the pitch, the greater the cost. But, on the other hand, the steeper the pitch the longer the roof will last.

Most roofs are about one-sixth pitch, but wood shingles should be one-fourth pitch. A gable roof will allow a false ceiling. This is an advantage in many sections, since straw can be packed in a gable and the house kept warmer and drier.

Two large yards should be attached to each house for the laying stock--one yard to be used while the other is given a rest.

In small, bare yards the birds do not get enough range or green feed. And the soil soon becomes contaminated. Each yard should be plowed occasionally and seeded to a green crop. This prevents, to a great extent, flocks becoming infested with worms and infected with various diseases.

Place roosts and dropping boards at the rear about two feet above the floor. The roosts six inches above the dropping boards.

Roosts should be made of 2x4 inch pieces, narrow side up and edges rounded. Space them a food apart.

Place nests at the ends of the house. Have darkened nests built out from the wall so that the birds enter from the rear. Darkened nests prevent the eggeating habit.

Provide hoppers for mash, grit and shell.

Use platforms for drinking vessels so that straw cannot be scratched in the water and milk.

Plans for building houses suitable for your locality and plans for hoppers can be secured from your own state agricultural college or the United States Department of Agriculture.

And by the way drop this station, or the Department at Washington, request for enrollment card in the big U. S. Farm School. You should be receiving the printed lessons, 6 of them a week, that are sent free to all regularly enrolled students.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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PROGRAM..... RELEASE.....

Dairy Short Course --"Production of Clean Milk".

Lecture No. 2 -- "Why Clean Milk". Second Release Fri.,Oct. 15.

ANNOUNCEMENT: "Why Clean Milk", the second topic for discussion on the U. S. Dairy Farm School program, is of interest to both producers and consumers of milk--America's health beverage. Each radio talk is supplemented with printed material, giving more complete information, and free for the asking. An enrollment blank properly filled in and sent to the U. S. Department of Agriculture will bring these printed lectures to you regularly. Our school master requests your attention for the next few minutes.

* * * * *

Suppose your small son, Johnny, whose hair is as red as a bunch of carrots and who is as tough as rawhide, should catch the measles from the neighbor's boy:--

Would you take him to the barber shop and have the barber let a pint of blood out of his veins?

Suppose you, yourself, contracted a bad case of rheumatism, and could only get around with a couple of canes and a very bad temper: --

Would you call in all the neighbors and have them beat their corrugated iron tubs, and scream, and shout, and light smudge fires around your house?

Suppose your wife had a run of hard luck and broke all the dishes, -- cooked the soup too long, -- and the pie not long enough: --

Would you watch the smoke from your chimney pot to see if it meant bad omens?

You wouldn't do those things.

It was only about a couple of centuries ago that men tried to cure disease by blood letting. They thought that sickness was caused by too much blood or something. So they let out the blood not knowing the SOMETHING that was the real cause.

Tney thought disease was caused by evil spirits. So they made the night ring with hideous noises. This, they thought, would drive away the spirits. Sometimes it killed the patient.

In those days farmers thought their milk was clean when they kept the cow's tail out of it and strained it after milking.

Nowadays you dairy farmers steam your milk utensils. Cool the milk to a temperature where a bacterium finds it hard living. Keep the cows so clean they seem to have just come out of a daisy patch. Dress your milkers in clean clothes - and have them wash their hands in soap and water before milking. You use small-top milk pails so less dust and dirt can get into the milk. You keep the premises clean. You test your cows for disease and cut out the sick ones.

In these days men are certainly making it tough for the bacteria.

All these precautions pay. You have heard of the story of the tree that bore the golden apples, I suppose. Well, clean milk is a sturdy tree that also bears golden fruit. The production of better milk has put many dollars into the pockets of dairymen.

Hand in hand with the great advances men have made in sanitation within the last century or two, has come the improvement they have made in the production and care of the national food supply. Good food adds to the length and health of life. We have learned how to select and prepare foods more wisely. We have learned how to produce and keep foods in a more sanitary way. You dairy farmers have been in the lead in this movement.

Production of good milk for human foods - that is one of the most useful and profitable occupations. Nearly half of the milk produced in the U. S. is used in fluid form, either as milk or cream. We used 27 million tons of fluid milk and cream in 1925. It would take a long time for that to flow under the bridge. Man and maid, farm and factory, sick and strong, -- all are benefitted by this univeraal food-beverage.

What a tremendous lake of liquid milk being consumed in this country every year. Naturally enough those who are using it are demanding that the milk be produced and handled under sanitary conditions. This has made necessary new ways to keep milk clean.

Every time a baby is born, business should pick up for the dairymen. Dairy men's responsibilities increase with each birth. If milk is carelessly produced and improperly handled, it may be the means of spreading disease. Every one of you dairymen knows this. Every one of you recognizes the responsibilities that are yours in this huge business.

The city consumer is entitled to this protection. He buys the milk. He has the right to demand high quality milk. The purchase of milk is like putting deposits in the savings bank of health.

Todays dairy farmer is keenly alive to the welfare or his own family. Of course the milk problem on your own farm is much simpler than in the city. The best is none too good for your family. You are the main producers. Why shouldn't you have the best? You are as much entitled to wholesome and abundant food as the city fellow.

There's a whole unseen kingdom of bacteria in the world. Get a good microscope some day and adjust it upon a slide on which is spread merely a drop of ordinary water. You'll be surprised at what you see. Bacteria are tiny plants. If sown in the fertile field of milk, and grown under favorable conditions they

produce an enormous crop. Like other plants, bacteria grow more rapidly when kept warm. But are dormant, or nearly so, when cold. Insanitary practices add many bacteria to milk. Lack of proper cooling of milk allows them to grow in numbers. Of the innumerable kinds of bacteria, only a few cause human disease. But every variety of bacteria is undesirable in milk. Some varieties cause sour milk. Others cause certain changes which result in unpleasant flavors and odors in the milk. It is almost impossible to estimate the loss to farmers which comes through the action of bacteria in milk. Nearly all modern milk receiving stations and milk plants return sour or off-flavored milk to the farmer, or else pay for it at reduced prices. Find a man who wants to accept reduced prices for his products! Our milk plant, which kept strict records, returned over 50,000 gallons of sour milk to farmers in one year.

Consumers will use a larger quantity of dairy products if they are of good quality and flavor. Sales records show that. Would you eat more sound, mealy potatoes than you would soggy, specked ones? Certainly. The use of milk has increased within the past few years, because dairymen are producing clean, fresh, and pure milk. Supply and demand are working in the milk business just as they are in any business.

Station_____now concludes the dairy farm school lessons brought to you at this period by the U. S. Department of Agriculture. Livestock on Mondays, Poultry on Wednesday, and Dairying on Friday is the weekly schedule of the U. S. Radio Farm School. Send your request for enrollment blank to this station in order that you may keep a complete set of the printed lessons which are a part of this government service.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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PROGRAM..... RELEASE.....

FARM SCHOOL Fri. Oct. 15.

Short Course -- "Dairy Herd Selection and Improvement."

Lecture No. 1 -- "Selecting Animals for the Foundation Herd."

ANNOUNCEMENT: Next in order is Uncle Sam's Dairy School. We have two little heart to heart talks on the program. Both are short and to the point. The first lesson which comes to us from the U. S. Department of Agriculture discusses Selecting Animals for the Foundation Herd. If you are not getting the printed material request our enrollment blank without delay. Our Schoolmaster Mr._____

Frank Drake dropped into my place last week. He's a fine, hard-working young fellow -- Usually, he's uncommonly cheerful. But that day he was as solemn as an owl.

"What's on your mind, Frank?" I asked.

"I just came to get a little advice," he began. "You see, I've decided to go in for dairy farming. I've raked together some money to buy a herd and ----"

"Success to you, my boy!" I broke in.

"Maybe I'll have the success alright," he smiled, "if you'll tell me what breed is best to start with."

"There is no best breed of dairy cows," I replied. "There are good cows and poor cows in any breed. My advice would be to select the breed you like the best -- Of course," I added, "if buyers want dairy cattle of any particular breed they are almost sure to go where there are a good many of that breed to be found; so it's generally best to choose a breed that's common in your neighborhood."

I could see Frank was disappointed at what I told him and a little impatient, too.

"Well," he said, "I want to go into this thing right, so as to get the best returns on my money."

"Whichever breed you select, you should select good individuals."

"Sure", he agreed, "But how?"

"Records show that the purebred cows of this country produce more milk and butterfat per cow than grade cows do," I explained. But until you have had ex-

perience you had better keep good grade cows and a purebred bull."

"But how can anybody know how much milk a cow will give before he buys her," Frank asked.

"There wasn't any way a few years ago," I replied. "But now there are some 800 cow-testing associations in this country. They have about 350,000 dairy cows on yearly test. The tests show the yearly milk and butterfat production of each of those cows and also the cost of roughage, cost of grain, gross income, and the average income over cost of feed. These records are kept by an impartial tester and are a good guide in selecting stock for a new herd."

"And how about selecting bulls?" questioned Frank.

"Of course, you might even select your sire through the cow-testing association by means of the records of his daughters -- but not many have been proved through these records and most dairy bulls must be picked on their appearance, pedigrees, and the records of their dams."

Frank looked thoughtful. "How much milk and butterfat should a good high-producing cow give?" was his next question.

"That depends," I told him. The owner of a scrub herd may call a butterfat production of 150 pounds a year per cow 'high-production' while an owner of a good purebred herd might think in figures three or four times as big as that. I'd say that you don't want a mature cow that gives less than 6,000 pounds of milk containing at least 240 pounds of butterfat."

"Well, now, about what do you figure it ought to cost me to buy first-rate, pure-bred, high-producing cows? asked Frank, leaning forward nervously as if a lot depended on my answer.

I casually mentioned a reasonable price per head for that kind of stock --- Well, sir! -- you should have seen his face. He looked like he had lost his last friend. He must have seen the cows walking right out of his mental picture of that dairy farm.

"That's more than I can raise--" he managed to say huskily.

"Yes," I added, "its more than most beginners can raise. Ideal plans don't always fit practical bank-rolls. But as I said before, taking everything into consideration, the beginner is usually better off when he begins with good grade cows. Purebred stock do produce more, you can't get away from those figures; but their first cost is bigger. Yes -- my advice to you, Frank, would be to buy some good grade cows for your foundation herd.

"But purebred -- " Frank started to protest.

"After making a success with grade cows, you may want to change to purebreds. It won't cost you much to do that gradually by buying two or three good registered cows."

I could see that Frank was beginning to take interest again.

"I guess that is a pretty good plan," he said. "I'm afraid that if I get in too deep now, my funds won't last long."

"Well --," I suggested, one of the cheapest ways so far as the immediate outlay is concerned is to buy a few bred heifers or heifers about to freshen. Beginning with young unbred heifers or with heifer calves will take too much time if you are interested in quick returns. By starting with cows in milk, you may have an income from the dairy herd in the form of dairy products the very day you buy your first cow."

"Thanks for the advice," Frank said enthusiastically as he got up to go. "That's just what I want -- to get in right and as soon as possible.---but say, he questioned thoughtfully, you know those cows of Bud Smith's. He wants to sell me those. They are probably not what you would call high-producers but I could save a good bit on them and start with a larger herd -- for he offered them cheap."

"Turn them down, by all means, turn them down," I advised, "they are nothing but scrubs."

"I could gradually build up a herd of high-producers through breeding could I not," Frank argued.

"Gradually is right -- it would take a lot of time -- and your profits would be a long time coming. Here you were a few moments ago wanting to buy a champion herd and now you've turned right around and gone to the other extreme of wanting to buy low-producing scrubs. A cow that does not produce enough to pay for her feed is not a cheap cow to own no matter what price you pay for her."

"Get this into your head Frank," I said, "regardless of how large the herd may be or how carefully it is fed and handled, there is little chance for success in the dairy business with cows that lack the inherent ability to produce reasonably large amounts of milk or butterfat. It is always better to begin dairying with a small herd of comparatively high-producing dairy cows than with a larger herd of low producers. High producers cost a bit more but they're worth it. Yes sir.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

U. S. RADIO FARM SCHOOL — First RELEASE — Mon. Oct. 25

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PROGRAM

SHORT COURSE: "Livestock Breeding."

LECTURE NO. 4: "Horse Breeding."

ANNOUNCEMENT: The first lesson in Uncle Sam's Radio Livestock School tonight takes up "Horse Breeding" a subject that probably deserves a great deal more discussion than it gets these days. We'll see what the schoolmaster has to say.

* * *

Lafe Clark drove me out to the County Fair last month. It was the day they had that big five-gaited saddle horse ring. We got there late and we had a hard time finding a place to park the car.

"Funny going to a horse show, nowdays," Lafe remarked. "You can hardly see the horses for the automobiles."

"That's right," I agreed, "and if some of you farmers don't get busy and produce more colts, horses may soon be getting scarce back on the farm."

"I've been thinking about that," Lafe said, as we walked over to the grandstand, "I understand there's a bigger proportion of old horses now than in many years."

"Yes," I remarked, "horse breeding in this country is generally a side line to regular farming. They used to raise colts enough on each farm to replace the mature horses that reached marketable age and were sold off. Now, in a good many sections, the colt crop is getting smaller."

"Well, if there's much rolling land like mine," Lafe replied, "there'll be need for good work horses for some time to come. I've always depended on the other fellow -- never produced any horses myself -- but I've about decided to start it."

"Good," I commented as we commenced hunting seats in the grandstand. It was just about time for the big saddle ring. The judges had just pinned the blue at the wind-up of some draft horse ring. No sooner had we found seats than Lafe began again.

"What breed and type of horse would you say it's best to raise?" Lafe asked me.

"Saddle and draft horses are most in demand at present," I answered. "If you have no special personal preference, I'd suggest the same type and breed that most of the other farmers around here have. That will give you a ready outlet for surplus stock and make it possible to secure the services of good stallions."

"I suppose it would be better to mate the same breed?" Lafe questioned.

"Sure -- " I replied -- "Anyway mate the same type. If your mares are also all the same type, it is often possible to produce matched pairs of young horses."

"Say, that's a good idea," he said, "they would bring a nice premium --- How would you select the mares?" he added.

"Well," I explained, "in selecting mares, be sure they have the desirable conformations and that they are breeders and workers. Pick out those that have style, quality, a good disposition, excellent feet and legs, a deep barrel, and width across the hips."

"And how about stallions?" Lafe asked.

"The stallion should be a good representative of his breed," I replied, preferably he should have a good bunch of sons and daughters so there will be no doubt about his value."

"All stallions," I continued, "should have good feet and legs, quality, masculinity, and good dispositions. They should be free from unsoundness and hereditary defects."

"I suppose weight is the thing to look for in draft stallions," Lafe ventured.

"Sure," I agreed, "They've got to have weight -- but don't secure it at the expense of quality and soundness. There's a good example -- "

I turned toward the track to point out the winning draft horse -- but he was gone. Instead, the light saddle horse ring was on. As a big black and a chestnut came cantering past the stand, the crowd burst into applause. It was evidently going to be a hot contest. Those two showed the poetry of motion, all right.

"There are the qualities to look for in your light stallions," I said; style, smooth lines, and correct action!"

As we watched those horses change from one gait to another, I kept pouring the lesson on horse breeding into Lafe's ear. I explained that only well-developed draft mares should be mated as 2 year olds -- that mares of light breeds should be bred as 3 or 4 year olds depending on their individual development. I went into the care of mares before and after foaling -- told him to give them light work until two weeks before and then to start light work again about two weeks after -- with a gradual return to full feed.

I went on to say that foals of working mares should be allowed to nurse several times a day, but never when the mares are warm. I explained that foals may be taught to eat such good foods as ground oats, wheat bran, and corn meal at 2 months -- supplemented by good pasture and a little legume hay. I

suggested that it costs no more to feed a purebred than a grade or crossbred and the returns are greater.

But Lafe wasn't hearing. His whole mind was on the track. I knew he could find out all I told him and more by writing to the Department of Agriculture. From those beauties stepping past the stand, he was getting first-hand information on what to look for in breeding stock. And what's more — he was catching the spirit of the horse breeder.

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ANNOUNCEMENT: And before we go to another subject, let me remind you to write either this station or the Department of Agriculture at Washington for enrollment cards. You're missing something worth your while if you have not been placed on the mailing list for the printed talks that supplement the Radio Farm School.

UNITED STATES DEPARTMENT OF AGRICULTURE
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U.S. Department of Agriculture

PROGRAM U. S. RADIO FARM SCHOOL First RELEASE Fri. Oct.29

SHORT COURSE: "Production of Good Milk."

LECTURE NO. 4: "Cooling and Transporting Milk."

ANNOUNCEMENT: Again tonight we call together the students of the U. S. Radio Dairy School. Our first lesson is on the subject of "Cooling and Transporting Milk." If you wish to join the class, which now numbers into the thousands, request an enrollment blank, which, when filled in and mailed to the Department of Agriculture, will bring to you 192, printed lessons which supplement these radio messages.

* * * *

Well -- well -- well!

Remember the well on the old place?

It certainly came in handy for cooling milk and cream.

I'll never forget ours. When I wasn't more than knee high to a duck, Ma used to have me lowering buckets of cream and things in that well.

It seemed like I couldn't come about the house, that Ma didn't chase me out to haul up or let down something in that cooler.

Over at Grandpa's they had a spring house. I can still see those crocks and cans of milk setting around in the damp cool when we barefooted boys used to slip in there on hot days.

But Uncle Jake had the spring-house! He lived down by the river and used a big cave at the bottom of the cliff.

Nobody knew why cooling helped keep milk sweet. They just knew that it did.

That was back in the days when everybody seemed to agree that milk soured when it thundered.

Now we know that it wasn't the thunder.

Bacteria, tiny plants too small to see with the naked eye, cause milk to sour. No matter how clean and careful you are in handling milk, a few bacteria will get in. But they grow best in warm temperature. It is the hot weather just before the thunder storm breaks that starts the bacteria to multiplying rapidly. If milk is kept cool, the biggest thunder storm won't sour it.

Bacteria don't multiply very fast in milk that is below 50 degrees Fahrenheit. Above that temperature, their increase is remarkably rapid. It stands to reason, then, if you are to produce high-quality milk, have it keep its good flavor, and keep sweet for at least 24 hours after it reaches the consumer, you must pay special attention to its temperature.

The idea is to check bacteria growth by cooling the milk as quickly as possible after it is taken from the cow. If you have been in the habit of hurrying away with your morning's milk before it is thoroughly cooled, do not be surprised if the dealer who buys it is dissatisfied. If you have held your evening's milk over night without cooling it enough, don't be shocked if it is returned to you marked "sour" -- or the health department turns it down as unacceptable because of too many bacteria.

Now that milk is kept longer and shipped further than it used to be, you have to cool it more thoroughly than we used to do in the old well or springhouse at home.

If you have plenty of pure, cold running water, you are lucky. Almost any dairyman can build a cooling tank large enough to hold his milk cans. You can place this tank where water from your spring or pump will run through it. Then you can see that as soon as your milk is drawn from the cows it is strained into cans which are placed in the running water up to their necks. It isn't much trouble to stir the milk a little each time you come from the barn with more milk. That will cool it more quickly.

But don't rely on one tank of water to cool a number of cans of milk. If you do, you may find that the milk warms the water instead of the water cooling the milk.

If there is no running water available, use enough ice in the cooling tank to bring the temperature of the milk down to fifty or below.

Or if you wish to cool your milk quickly so you can bottle it for early delivery, you may find it to advantage to use a surface cooler. The surface cooler is kept cold on the inside by running water or ice water and the milk is allowed to flow slowly over it.

It's certain that if you haul milk some distance or ship it by rail, you will have to cool it thoroughly to prevent losses.

And another thing. I was driving down the road this morning and saw a bunch of milk cans setting in the sun. The sun was still bouncing off of them an hour later when I came back. Evidently, they were set out there for a truck to pick up. But if that farmer couldn't have met the milk truck at a certain time, he ought to have at least provided shade for the cans. Better still, he could have had a canvas or other covering to prevent the milk warming so fast.

For long hauls, insulated jackets for the cans are advisable.

Every precaution should be taken to keep milk cool in transit and to cool it promptly and thoroughly before starting on its journey.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL Second RELEASE Fri. Oct.29

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SHORT COURSE: "Selection and Improvement of the Dairy Herd."

LECTURE NO. 4: "Butterfat and Income."

ANNOUNCEMENT: The second lesson tonight, "Butterfat and Income," is a subject of wide interest to the dairyman. It's brief but full of good suggestions. If you are not receiving the printed material that goes free to all enrolled students in the U. S. Radio Farm School, write this station or the Department of Agriculture for enrollment blanks. Now for the lesson.

* * * * *

Well --- this is going to be a little lesson in dairy arithmetic.

But before we get down to figures, I want to tell you about Dick Owen's old crippled cow, "Daisy."

Dick tried to sell me that cow a year ago. He'd heard I was in the market for a dairy cow and he said he'd sell me "Daisy" for $75.

But I just laughed at him. I knew that if he was willing to part with her for $75 he thought she wasn't worth a cent more than that.

"How much milk does she give?" I asked.

He hemmed and hawed and finally admitted that he didn't test his cows for production.

"I'm not buying cattle for their hide and tallow," I said, "and I'm not buying milk cows 'sight-unseen,' as it were. If you could show that "Daisy" has anything but three-legs and an appetite, we might talk business."

What I said started him thinking. He began weighing "Daisy's" milk and testing it for butter value with a Babcock tester. He found that she was the best cow in his herd. He's just completed a year's record which shows that in the last year she has produced 9,300 pounds of milk with 526 pounds of butterfat in it. He figures that she has netted him $267 above what it cost to feed her. In other words, that cow is the highest producer around these parts and the biggest money maker for her owner.

That just shows how production records save money. Dick was about to give away his best cow because he really didn't know she was any good.

After I heard about that $267 above feeding cost, I started looking up cow testing association records. I compared the production, the feed cost, and

the net income from thousands of cows.

I guess, few folks realize how fast income goes up as production increases. I'll admit I was surprised myself. I found that I would rather own one cow that produces 400 pounds of butterfat a year than to own ten, each of which produces 100 pounds.

"Back up," I can hear some of yourfolks saying to yourselves, "Ten cows producing 100 pounds each makes 1000 pounds. That's two and a half times as much as 400 pounds."

That's good mental arithmetic as far as it goes. But remember that those ten cows have to be fed just the same as my one.

I found in a group of cows with an average yearly butterfat production of 100 pounds per cow that the average income above feed cost was $10 a year. The records also showed that the cows that produced200 pounds of butterfat apiece had an average income over feed cost of $42 a cow. At 300 pounds of butterfat, the income above feed cost had jumped to $74, and at 400 pounds it had gone up to $106 a cow.

In other words, the cows that produced 400 pounds of butterfat a year produced four times as much as those that produced 100 pounds, but they brought in more than ten times as much income above feed cost.

In one of the best dairy districts in Michigan last year the records showed a farmer with a herd of 15 low-producing dairy cows. Just across the road, a neighbor owned a herd of 10 high-producing dairy cows.

The 15-cow herd had an average butterfat production of 239 pounds a cow and an average income above the cost of feed of $35 a cow.

The 10-cow herd had an average butterfat production of 429 pounds a cow and an average income above feeding cost of $188 a cow. With two-thirds as many cows, the owner of the smaller herd received a total of $1,355 more income above feed cost. He spent more money on feed, especially on concentrates and he marketed the product at a higher price; but the big difference in income came mostly from the difference in production.

I was telling Bud Long these figures the other day. He said they just made him feel sad. He complained that he knew other dairymen made more profits than he did but it didn't make him feel better to know how much bigger they were."Tell me something I can use on my own herd, to boost the profits," he remarked.

"That's the chief use for production tests," I insisted and then I told

him about that Virginia dairyman, who, when he began testing for production had a herd of 31 cows. After weighing and testing the milk for a few weeks he cut down the number to 26. He fed the 26 according to known production and got a higher yield of milk and butterfat than he had obtained before from the larger herd. By the end of the first year of testing, that Virginia dairyman reduced the number of his cows to 20. And the 20 actually produced more than the original 31.

By careful selection and close culling, he reduced the herd to 10 well-bred, well-fed cows and the 10 produced as much butterfat as the 20. Then he started building up the herd again until it consisted of 20 cows. That gave him a herd of 20 cows that produced more than twice as much milk and butterfat in a year as the original 31 and gave him many times the net profits he had been receiving.

It's the same story everywhere. Production and income trot right along together. In all the studies so far made of individual cows these records have shown that high production is always accompanied by big income over cost of feed.

Test your cows for production and cull out the low producers if you want to get the big profits. Next week we'll talk some more about feed costs.

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